



Updating Virginia's Statewide Functional Classification System

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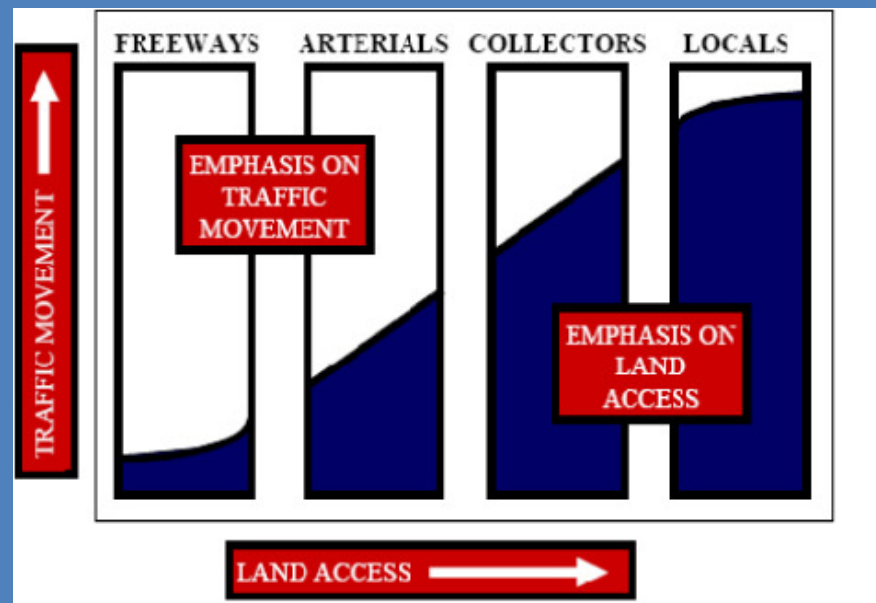


Today's Agenda

- ❖ What is Functional Classification
- ❖ Use of Functional Classification
- ❖ Functional Class Update
– Key Elements
- ❖ Web Tool Demo
- ❖ Next Steps

What is Functional Classification

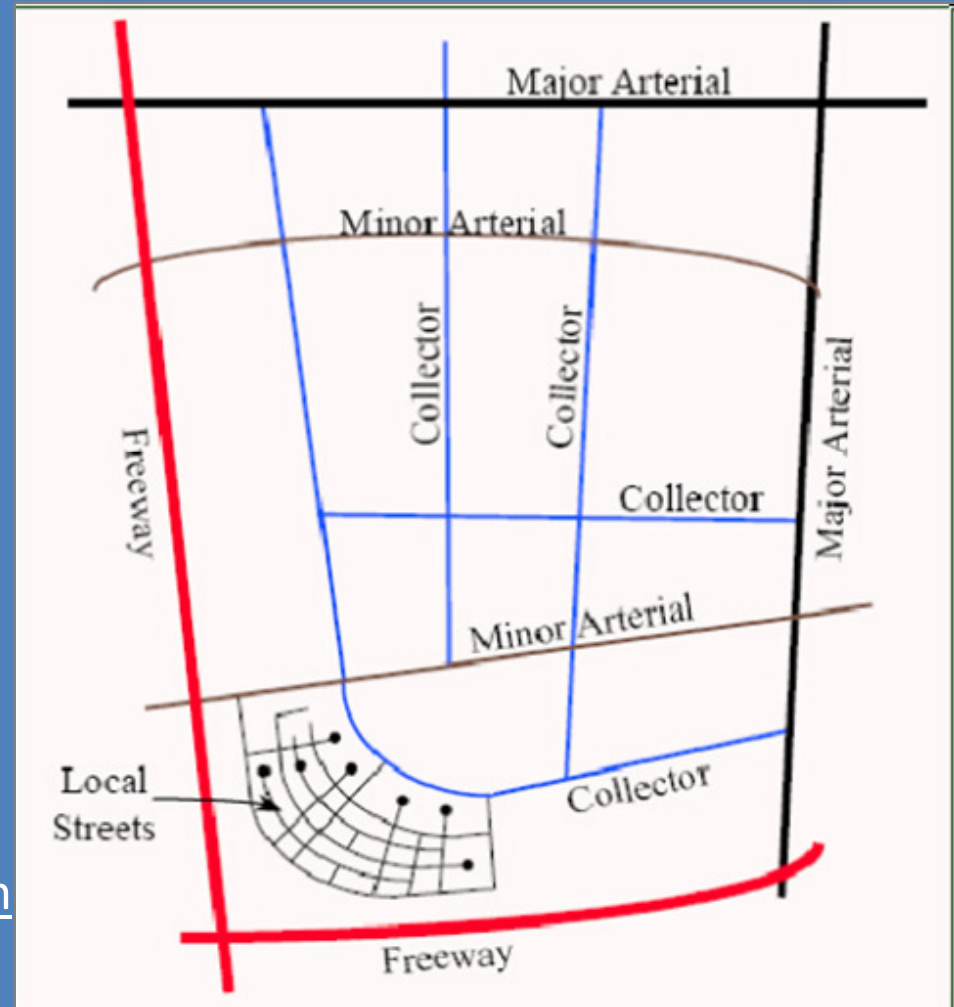
- Process by which streets and highways are grouped into classes, or systems, according to the part that any particular road or street plays in serving the flow of trips through a highway network.
- A roadway's functional usage is based on Mobility & Accessibility
 - Mobility - is measured in respect to ability of traffic to pass through a defined area in a reasonable amount of time
 - Accessibility - is measured in terms of the road system's capability to provide access to and between land use activities within a defined area



Functional Classification Criteria

- For each class, FHWA provides criteria. Examples include:
- Type of trips being served
 - Travel speeds
 - Trip distance
- Population center thresholds and/or traffic generators/destinations being served
- Expected volume
- Network characteristics
- Interval spacing
- Mileage extents

www.fhwa.dot.gov/planning/fctoc.htm



How does VDOT use Functional Classification

Used to determine:

- ✓ Federal-aid highway program funding eligibility
- ✓ Applicable geometric design standards of the VDOT Road and Bridge Design Manual
- ✓ Maintenance payment amounts that a locality will receive if the locality has responsibility for road maintenance
 - Arterials (principal or minor) FY 12-13 receive \$18,157 per lane mile
 - Collectors and locals FY 12-13 receive \$10,661 per lane mile
 - Payment rates change every year

How does VDOT use Functional Classification (cont'd)

- ✓ Access management features (spacing-frequency and/or type of access such as interchanges, intersections, and roadside entrance, exit and/or driveway points)
- ✓ Highway Performance Monitoring System federal reporting
- ✓ Secondary Street Acceptance Requirements
- ✓ NHS facilities required to meet “performance standards” TBD by FHWA

Statewide Functional Classification Update

Key Elements

- ❖ Best Practice Research
- ❖ Document Functional Classification Update Process
- ❖ Ad-Hoc Functional Classification Guidelines
- ❖ Update Functional Classification Inventory

Best Practice Research



Statewide Functional
Classification Update:

Best Practices Research

Prepared by

Baker

Michael Baker Jr., Inc.

March 21, 2012

Departments of Transportation
Interviewed:

- Alaska
- Kentucky
- Maryland
- Minnesota
- New Jersey
- North Carolina
- Ohio
- Tennessee
- Texas
- Washington
- Washington D.C.
- West Virginia
- Wisconsin

Best Practice Recommendations



Statewide Functional Classification Update

Best Practices Recommendations

Prepared by:

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March 21, 2012

- ❖ Recommendations for Adherence to New FHWA Guidelines
- ❖ Recommendations for Conducting a Statewide Update
- ❖ Recommendations for Maintaining the Functional Classification Network
- ❖ Recommendations for Ad Hoc Changes to the Functional Classification System

Best Practice Recommendations

Recommendations

It is *recommended that VDOT continue to use a committee to guide the functional classification update*. The committee should include members from TMPD, Traffic Engineering, the Maintenance Division and District representatives. *One or more of the committee members should be very familiar with VDOT's GIS databases such as the LRS system.*

TMPD is ultimately responsible for the functional classification while Traffic Engineering is responsible for the traffic volumes which are needed to calculate the VMT percentage ranges within which groups of functional classified roads must fall. The Maintenance Division is responsible for compiling and reporting HPMS data which includes functional classification.

It is also *recommended that VDOT should use district personnel to review the proposed functional classification changes in their district*, as they are the most familiar with the roads in the area and can provide the best guidance. This staff could include District Planners as well as maintenance staff. However, TMPD central office staff should have the final approval to ensure functional classification is applied consistent across the Commonwealth.

Statewide Update Documentation

VDOT Functional Classification Update Methodology

September 19, 2011

Baker

Step 5: Review National Highway System (NHS)

Baker will review the National Highway System (NHS) for appropriate adjustment, addition, and deletion of routes and for connections to intermodal facilities. Any recommendations resulting from the review will be based on the "Guidance Criteria for Evaluating Requests for Modifications to the National Highway System" (Section 103(b), of title 23, U.S.C.). Components of the National Highway System that will be reviewed include:

- The Eisenhower Interstate System;
- Interconnected urban and rural principal arterials and highways (including toll facilities) which serve major population centers, international border crossings, ports, airports, public transportation facilities, other intermodal transportation facilities and other major travel destinations; meet national defense requirements; and serve interstate and interregional travel. Strategic Highway Network (STRAHNET) that are important to the United State's defense policy;
- Major Strategic Highway Network Connectors that provide access to military installations; and
- Intermodal Connectors that provide access between intermodal facilities and other NHS routes.
- All high priority corridors identified in section 1105(c) of the ISTEA.

Baker will review databases and GIS files prepared as part of the VTRANS2035 project to identify key intermodal facilities. This review will include identifying routes that may have been added to the statewide network and would qualify for inclusion on the NHS. It will also require identifying new key intermodal facilities that have been constructed and warrant the inclusion of connecting roadways in the NHS.

Proposed modifications consisting of connections to major intermodal facilities will be developed using the criteria in the "Guidance Criteria for Evaluating Requests for Modifications to the National Highway System" (Section 103(b), of title 23, U.S.C.) and listed below. These criteria are used for identifying initial NHS connections to major intermodal terminals. The primary criteria are based on annual passenger volumes, annual freight volumes, or daily vehicular traffic on one or more principal routes that serve the intermodal facility. The secondary criteria include factors which underscore the importance of an intermodal facility within a specific State.

Primary Criteria

Commercial Aviation Airports

- Passengers--scheduled commercial service with more than 250,000 annual enplanements.
- Cargo--100 trucks per day in each direction on the principal connecting route, or 100,000 tons per year arriving or departing by highway mode.

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Ports

- Terminals that handle more than 50,000 TEUs (a volumetric measure of containerized cargo which stands for twenty-foot equivalent units) per year, or other units measured that would convert to more than 100 trucks per day in each direction. (Trucks are defined as large single-unit trucks or combination vehicles handling freight.)
- Bulk commodity terminals that handle more than 500,000 tons per year by highway or 100 trucks per day in each direction on the principal connecting route. (If no individual terminal handles this amount of freight, but a cluster of terminals in close proximity to each other does, then the cluster of terminals could be considered in meeting the criteria. In such cases, the connecting route might terminate at a point where the traffic to several terminals begins to separate.)
- Passengers--terminals that handle more than 250,000 passengers per year or 1,000 passengers per day for at least 90 days during the year.

Truck/Rail

- 50,000 TEUs per year, or 100 trucks per day, in each direction on the principal connecting route, or other units measured that would convert to more than 100 trucks per day in each direction. (Trucks are defined as large single-unit trucks or combination vehicles carrying freight.)

Pipelines

- 100 trucks per day in each direction on the principal connecting route.

Amtrak

- 100,000 passengers per year (entrainments and detrainments). Joint Amtrak, intercity bus and public transit terminals should be considered based on the combined passenger volumes. Likewise, two or more separate facilities in close proximity should be considered based on combined passenger volumes.

Intercity Bus

- 100,000 passengers per year (boardings and deboardings).

Public Transit

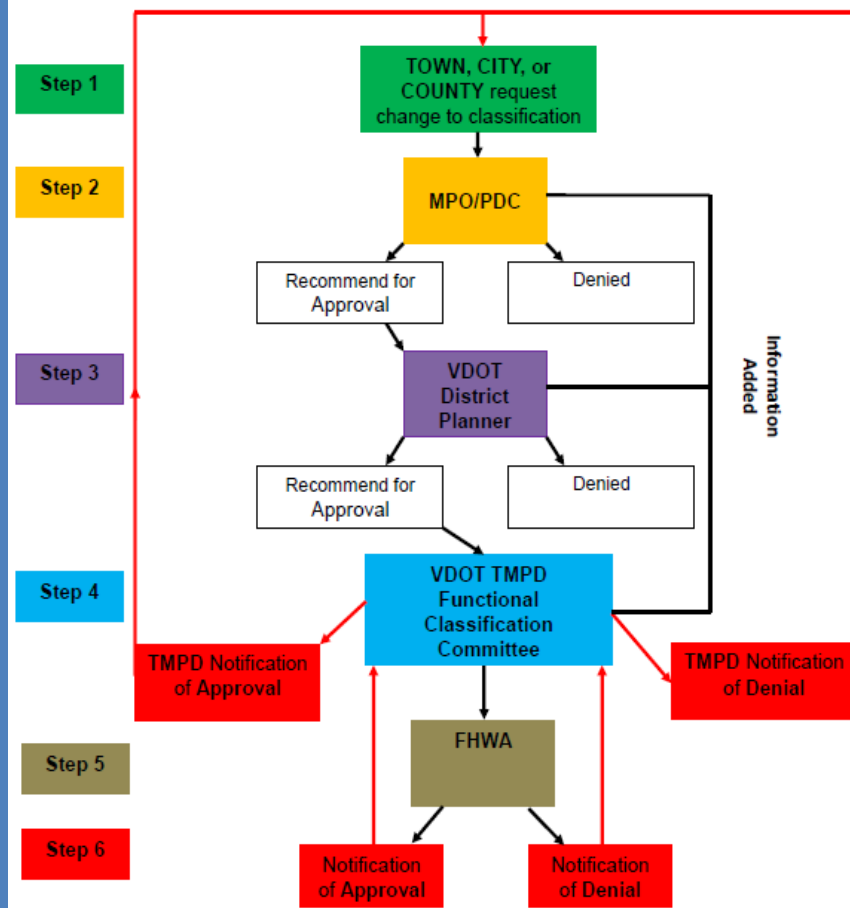
- Stations with park and ride lots with more than 500 vehicle parking spaces, or 5,000 daily bus or rail passengers, with significant highway access (i.e., a high percentage of the passengers arrive by cars and buses using a route that connects to another NHS route), or a major hub terminal that provides for the transfer of

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Ad Hoc Changes Process

Figure 1.
FUNCTIONAL CHANGE REQUEST PROCESS
Case 1: Requests from Local Governments in MPO Regions



Ad Hoc Changes Request Form



FEDERAL FUNCTIONAL CLASSIFICATION REQUESTS

This form has been developed for use in all future requests for Federal Functional classification changes. One form should be completed and submitted for each requested classification change. Functional classification changes require coordination with the MPO, if applicable. Upon completion of the requested forms they should be submitted to the VDOT District Planner with a transmittal letter signed by the Town Council, City Council, County Board of Supervisors or other responsible official.

1. COUNTY or CITY NAME	COUNTY or CITY NO. <small>(refer to Local Agency Guidelines)</small>
2. LOCAL AGENCY CONTACT PERSON	TELEPHONE NO.
3. LOCAL NAME OF ROUTE	ROUTE NO. <small>(if State Route use SR No.)</small>
4. TERMINI OF ROUTE <small>(Description and milepost (if available))</small> FROM _____ TO _____ LENGTH: Miles _____	
5. TYPE OF AREA <small>(Federal Aid Highway Urban Area):</small> <input type="checkbox"/> URBAN <input type="checkbox"/> RURAL	
6. EXISTING FUNCTIONAL CLASSIFICATION	PROPOSED FEDERAL FUNCTIONAL CLASSIFICATION
<small>(Freeway/Expressway, Principal Arterial, Minor Arterial, Collector, Major Collector, Minor Collector, Local Access)</small>	
Correspondence: _____	
7. SPACING <small>(Distance to closest parallel Federal functionally classified route)</small> Miles: _____ Distance to closest parallel route with same classification Miles: _____ Classification: _____	
8. DOES REQUESTED FC CHANGE EXTEND INTO ANOTHER JURISDICTION? <input type="checkbox"/> YES <input type="checkbox"/> NO <small>(If yes – concurrence from the other affected agency is required.)</small>	
9. EXISTING ROAD CHARACTERISTICS Roadway Width (incl. shoulders): _____ ft. Posted Speed Limit _____ MPH. Number of Lanes _____	
10. TRAFFIC (at significant volume change locations)	
Location _____ Existing Traffic _____ VPD	Location _____ Existing Traffic _____ VPD
Future Traffic (20 years) _____ VPD	Future Traffic (20 years) _____ VPD

VDOT FORM 1 01/12

OVER

11. Is the route on the National Highway System?

12. If applicable please list major traffic Generators (Generators that route serves – est. VPD)

SHOPPING CENTER: Total SQFT _____ VPD _____
INDUSTRIAL: Employees _____ VPD _____
GOV. INSTITUTION: Employees _____ VPD _____
AIRPORTS: Annual Flights _____ VPD _____

MILITARY INSTALLATIONS: Type _____ VPD _____
SHIPPING POINTS: Annual Tons _____ VPD _____
MAJOR TOURIST SITES: Annual Visitors _____ VPD _____
(parks, ski resorts, lakes, beaches, etc.)
COLLEGE OR UNIVERSITY: Enrollment _____ VPD _____
OTHER: Type _____

13. A brief description why the proposed change is requested and justification for the change.

14. Additional remarks to more fully explain the situation.

15. Attach a vicinity map showing the **proposed changes** and **existing Federal Functional Classifications**.

Signature of Local Representative _____

Signature of VDOT District Planner _____

This section is for VDOT approval or denial and comments.

Comments: _____

Approval ☐ YES ☐ NO

Signature of VDOT TMPD Official _____

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Why Update Functional Classification

New FHWA Guidance

- ❖ No longer requires a change at the location of the urbanized boundary
- ❖ Future Roads
- ❖ Urban Collectors replaced with Major and Minor Collectors
- ❖ New Mileage and VMT Thresholds
- ❖ Most recent update 2005 Functional Classification for VA based off 2000 census

New Mileage Thresholds

Old Percentages

	<u>Range (%)</u>	
<u>Rural System</u>	<u>VMT</u>	<u>Miles</u>
Principal Arterial	30 - 55	2 - 4
Principal Arterial Plus		
Minor Arterial	45 - 55	6 - 12*
Collector	20 - 35	20 - 25
Local	5 - 20	65 - 75
*With most states falling in the 7-10 percent range.		

	<u>Range (%)</u>	
<u>Urban System</u>	<u>VMT</u>	<u>Miles</u>
Principal Arterial	40 - 65	5 - 10
Principal Arterial Plus		
Minor Arterial	65 - 80	15 - 25
Collector	5 - 10	5 - 10
Local	10 - 30	65 - 80

New Percentages

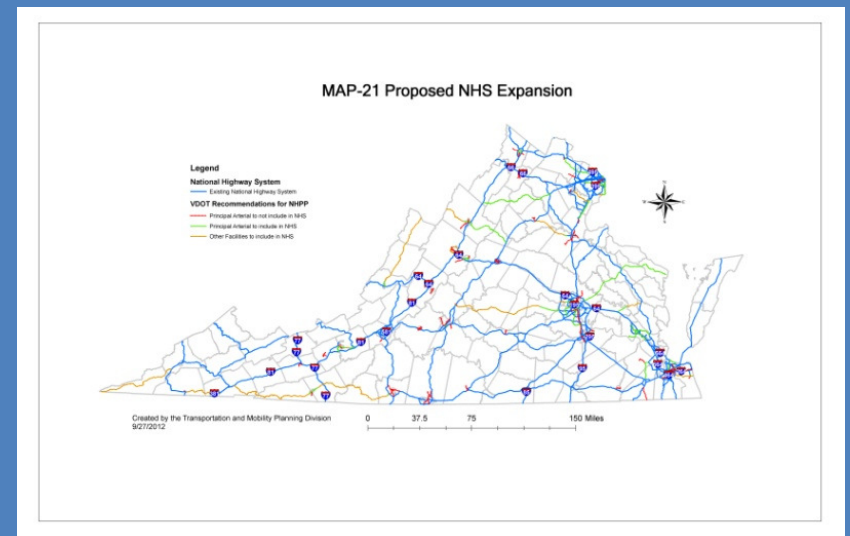
<u>Functional Classification Group</u>	Percentage of <u>Miles</u>	Percentage of <u>VMT</u>
Rural Principal Arterial (for NHS apportionment)	4% max	30-55%
Urban Principal Arterial (for NHS apportionment)	10% max	40-65%
All arterials and Collectors (for STP and HSIP apportionment)	35% max	70-80%

New FC Categories

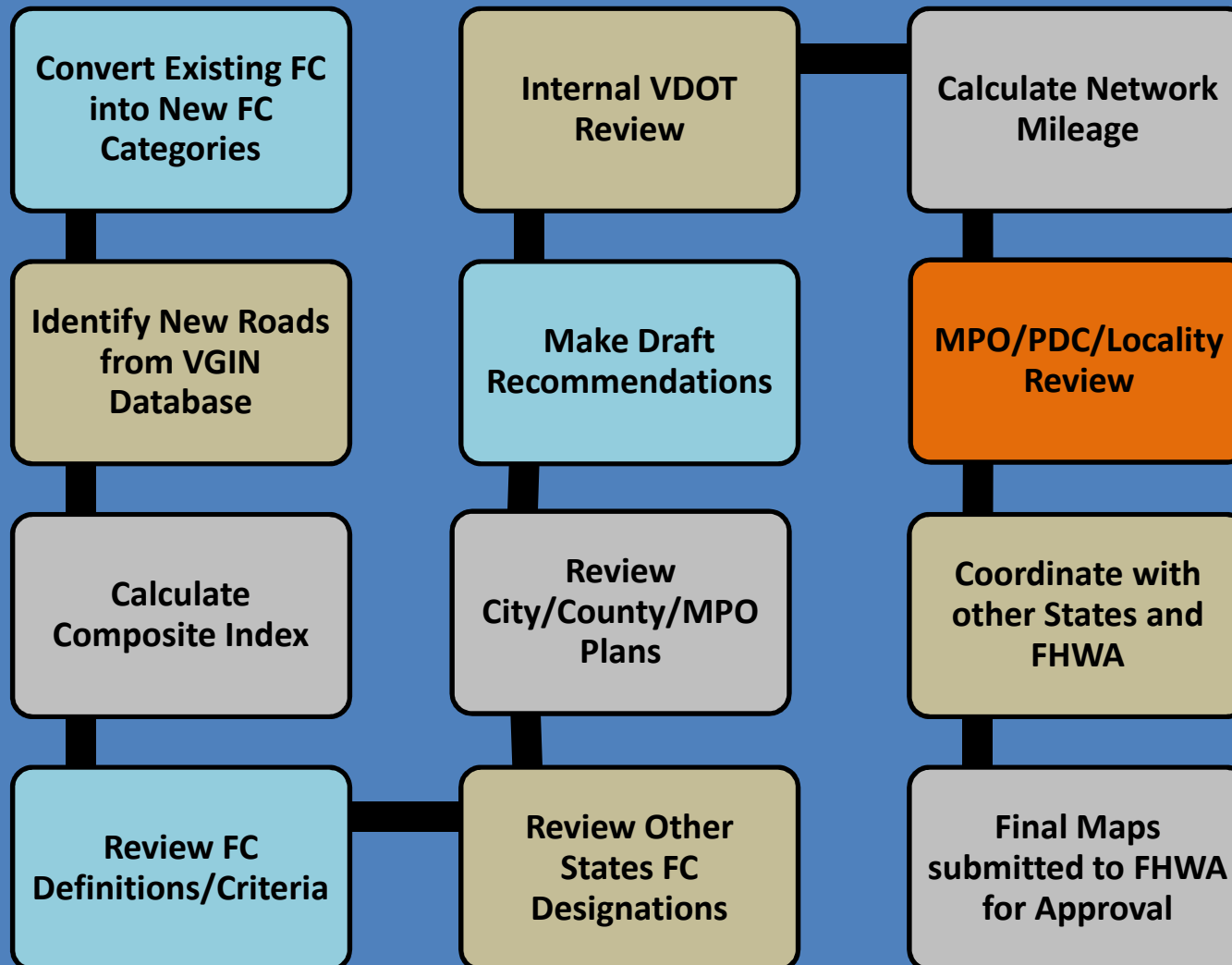
New FC	Old Urban FC	Old Rural FC
Interstate	Urban Interstate	Rural Interstate
Other Freeways and Expressways	Urban Other Freeways and Expressways	
Other Principal Arterial	Urban Other Principal Arterials	Rural Other Principal Arterials
Minor Arterial	Urban Minor Arterial	Rural Minor Arterial
Major Collector	Urban Collector	Rural Major Collector
Minor Collector		Rural Minor Collector
Local	Urban Local	Rural Local

New Conditionally Approved NHS MAP-21

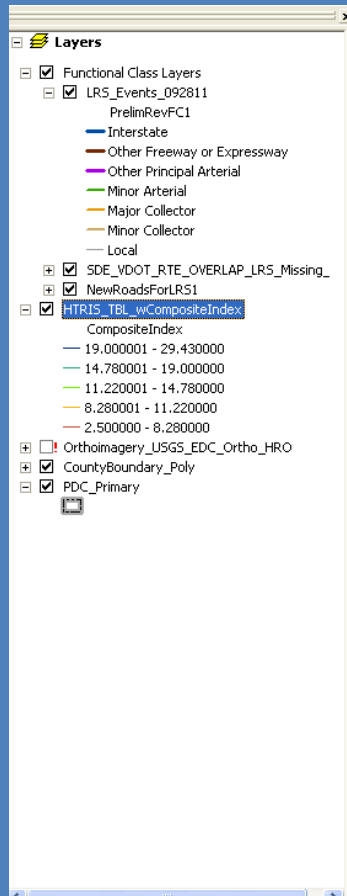
- ❖ VDOT submitted proposed NHS Expansion to FHWA – September 2012
- ❖ Received “Conditional Approval” pending MPO/PDC/Locality review
- ❖ Key Point – VDOT will work with MPOs / PDCs on reaching agreement on how these facilities should be classified - this is a cooperative effort
- ❖ MPO review is critical, only after MPO approval will the NHS designation become finalized



Our Update Process

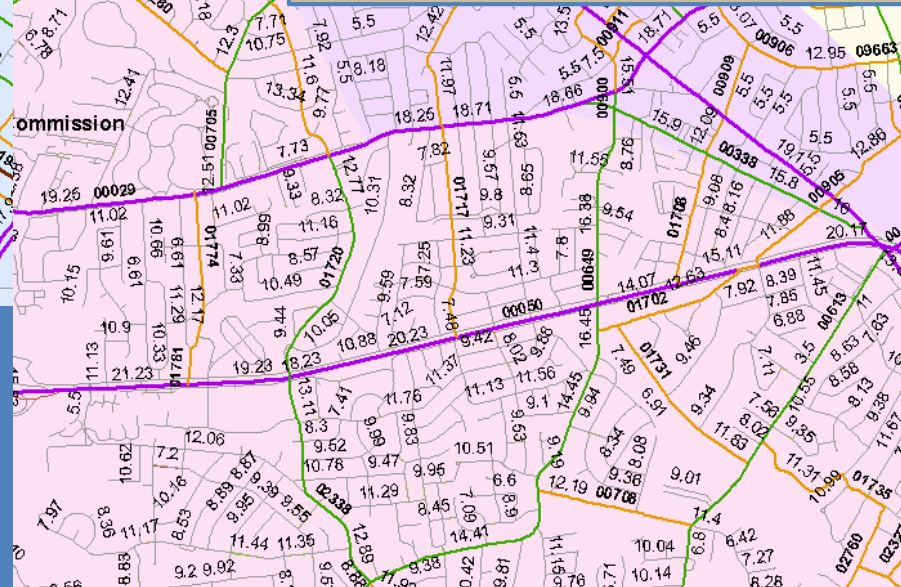


Calculate Composite Index



Composite Index based on:

- Volume Percentile
- Speed Limit
- Primary Route or not
- Number of lanes



Review Functional Classification Definitions & Criteria

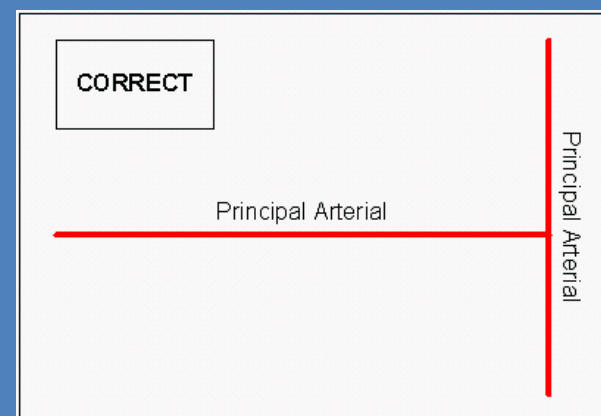
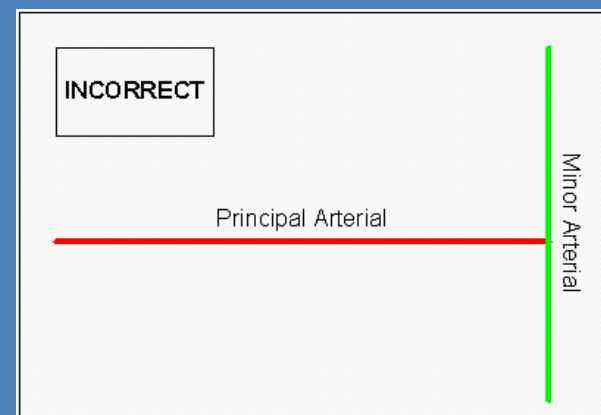
Other Principal Arterials

In Rural Areas

- Serves corridor movements of substantial statewide or interstate travel
- Serves all urban areas of 50,000 and over population and a majority of those over 25,000
- **Provide an integrated network without stub connections**

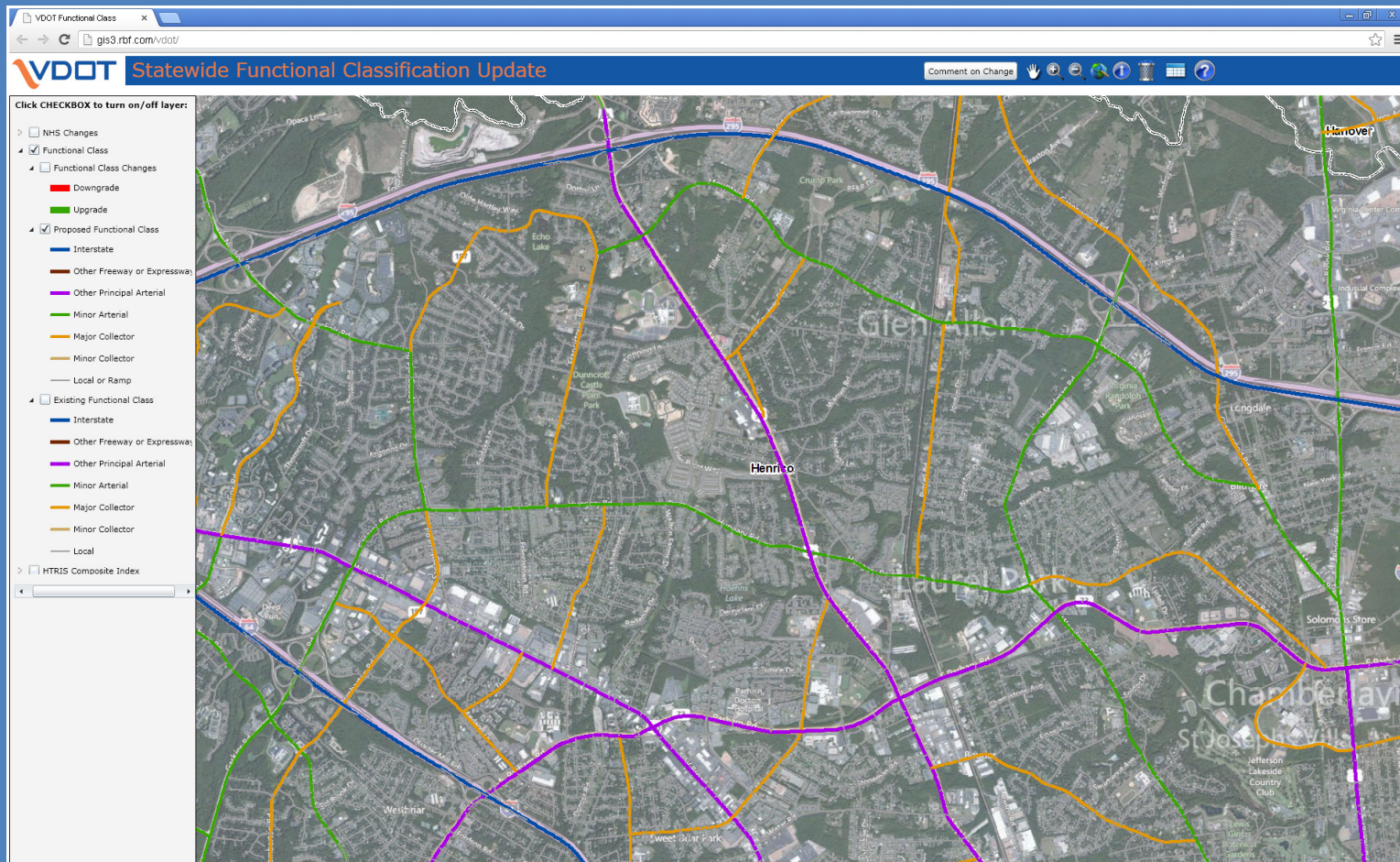
In Urban Areas

- Serves the major centers of activity of a metropolitan area
- Highest traffic volume corridors
- Roads serving the longest trip desires
- Carry a high proportion of the total urban area travel on a minimum of mileage
- Carry significant amounts of intra-area travel

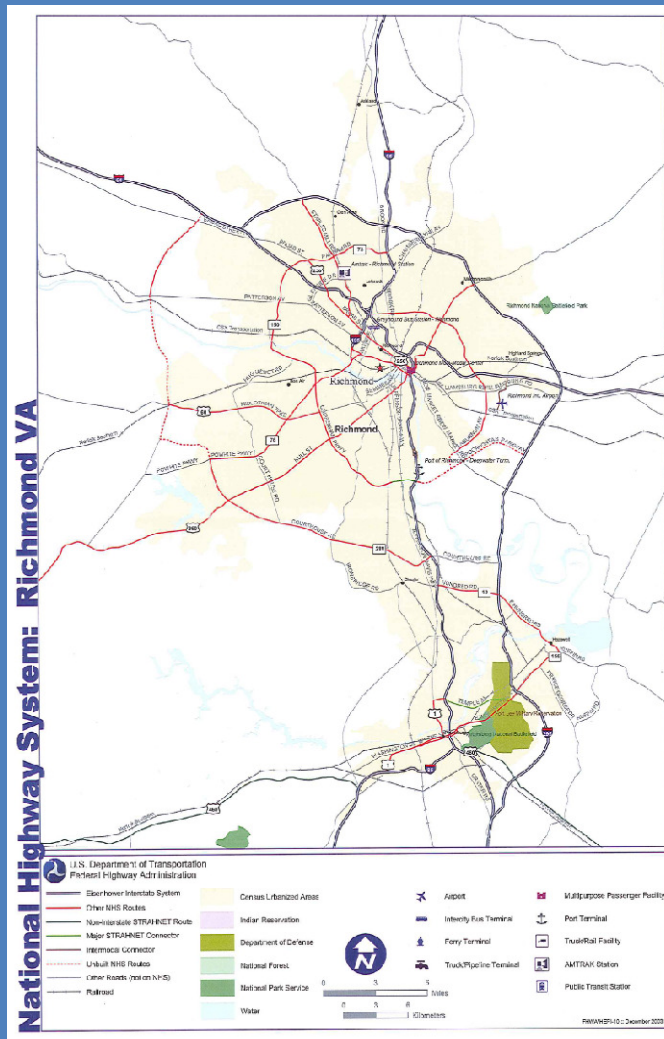


FC Web Tool

<http://gis3.rbf.com/vdot/>



Next Steps



- Continued MPO/PDC review of draft functional classification: **Now – July**
- Continued coordination with VDOT on edits and changes
- MPO / PDC approval of functional classification: **Now - August**
- VDOT submittal of final functional classification inventory to FHWA: **August/September**
- Incorporate new FC inventory maps on web (via Web Tool or similar): **September/October**

Questions?

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